

SAFETY DATA SHEET

DUOTACK PART A

Offerte en français

GHS	PROTECTIVE CLOTHING	TRANSPORT OF DANGEROUS GOODS
		Not regulated

SECTION I: IDENTIFICATION

Use: Bi-component adhesive for insulation materials.

Manufacturer:

Soprema Canada
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Drummondville (Quebec) J2C 5P7
CANADA
Tel.: 819 478-8163

Distributors:

Soprema Inc.
44955 Yale Road West
Chilliwack (B.-C.) V2R 4H3
CANADA
Tel.: 604 793-7100

Soprema USA
310 Quadral Drive
Wadsworth (Ohio) 44281
UNITED STATES
Tel.: 1 800 356-3521

Soprema USA
12251 Seaway Road
Gulfport (Mississippi) 39507
UNITED STATES
Tel.: 228 701-1900

In case of emergency:

SOPREMA (8:00am to 5:00pm): 1 800 567-1492

CANUTEC (Canada) (24h.): 613 996-6666

CHEMTREC (USA) (24h.): 1 800 424-9300

SECTION II: HAZARD(S) IDENTIFICATION

DANGER

Harmful if swallowed. May be fatal if swallowed and enters airways. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Causes skin irritation. May cause an allergic skin reaction. Causes eye irritation.

Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid breathing vapours. Use only outdoors or in a well ventilated area. Wear protective gloves, eye protection and an organic vapour respirator. Contaminated work clothing must not be allowed out of the workplace. Store locked up. Dispose of container in accordance with local, regional and national regulations.

SECTION III: COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

NAME	CAS #	% WEIGHT	EXPOSURE LIMIT (ACGIH)	
			TLV-TWA	TLV-STEL
Methylene diphenyl diisocyanate (MDI)	101-68-8	7-13	0.005 ppm	Not established
Polymeric diphenylmethane diisocyanate (PMPPi)	9016-87-9	5-10	0.005 ppm	Not established

Effects of Short-Term (Acute) Exposure

INHALATION

4,4'-MDI and PMPPi have a very low vapour pressure. Therefore, airborne exposures are unlikely to occur unless they are heated or form an aerosol or mist during pouring, frothing or spraying operations. Short-term inhalation exposure to isocyanates can cause respiratory and mucous membrane irritation. Symptoms include eye and nose irritation, dry or sore throat, runny nose, shortness of breath, wheezing and laryngitis. Coughing with chest pain or tightness may also occur, frequently at night. These symptoms may occur during exposure or may be delayed several hours. High aerosol concentrations could cause inflammation of the lung tissue (chemical pneumonitis), chemical bronchitis with severe asthma-like wheezing, severe coughing spasms and accumulation of fluid in the lungs (pulmonary oedema), which could prove fatal. Symptoms of pulmonary oedema may not appear until several hours after exposure and are aggravated by physical exertion. (1)

SKIN CONTACT

4,4'-MDI is a severe skin irritant based on animal information. PMPPi is a severe skin irritant based on information for MDI, a major component of PMPPi. In general, isocyanates can cause skin discolouration (staining) and hardening of the skin after repeated exposures. Skin contact is not expected to result in the absorption of harmful amounts. (1)

EYE CONTACT

4,4'-MDI: 4,4'-MDI may cause no irritation or slight eye irritation based on animal information. (1)

PMPPi: PMPPi is a mild eye irritant based on animal information for PMPPi and MDI. (1)

INGESTION

There have been no reports of human ingestion of 4,4'-MDI or PMPPi. Animal studies indicate that the toxic effects of the ingestion of 4,4'-MDI and PMPPi are slight. Ingestion could result in irritation and corrosion of the mouth, throat, and digestive tract. Ingestion is not a typical route of occupational exposure. (1)

Effects of Long-Term (Chronic) Exposure

LUNGS/RESPIRATORY SYSTEM

Exposure to isocyanates is likely to cause aggravation to individuals with existing respiratory disease, such as chronic bronchitis and emphysema. (1)

RESPIRATORY SENSITIZATION

Respiratory sensitization can develop in people working with 4,4'-MDI and PMPPi or its main component MDI. The sensitization is usually caused by a very large exposure or by multiple exposures. Although varying periods of exposure (1 day to years) may elapse before sensitization occurs, it develops more often during the first few months of exposure. Sensitized individuals react to very low levels of MDI (as low as 0.0014 ppm) that have no effect on unsensitized people. At first, the symptoms may appear to be a cold or mild hay fever. However, severe asthmatic symptoms can develop and include wheezing, chest tightness, shortness of breath, difficulty breathing and/or coughing. Fever, chills, general feelings of discomfort, headache and fatigue can also occur. Symptoms may occur immediately upon exposure, within an hour or several hours after exposure or both and/or at night. Typically the asthma improves with removal from exposure (e.g. weekends and vacations) and returns, in some cases, in the form of an "acute attack" on renewed exposure. Sensitized people who continue to work with isocyanates may develop symptoms sooner after each exposure. The number and severity

of symptoms may increase. Following removal from exposure, some workers may continue to have persistent respiratory problems such as asthmatic symptoms, bronchial problems and hypersensitivity to isocyanates. Others may recover fully and may gradually lose their sensitivity within several years. Exposure to isocyanates is likely to cause aggravation to individuals with existing respiratory disease, such as chronic bronchitis and emphysema. Cross-sensitization between different isocyanates may occur. (1)

SKIN SENSITIZATION

Isocyanates are contact sensitizers. Repeated skin contact with 4,4'-MDI and PMPPi may cause skin sensitization in humans. Further skin contact may result in skin inflammation, rash, itching and staining. Allergic contact dermatitis has developed from occupational contact with MDI. (1)

CARCINOGENICITY

The risk of cancer associated with exposure to isocyanates has been examined in 4 human population studies. No strong association or consistent pattern has been observed. The International Agency for Research on Cancer (IARC) has determined there is inadequate evidence for the carcinogenicity of MDI or polymeric MDI (4,4'-MDI, PMPPi) in humans. There is limited evidence for the carcinogenicity of a mixture containing MDI and polymeric MDI in experimental animals. (1)

4,4'-MDI: IARC has concluded that this chemical is not classifiable as to its carcinogenicity to humans (Group 3). The American Conference of Governmental Industrial Hygienists (ACGIH) has not assigned a carcinogenicity designation to this chemical. The US National Toxicology Program (NTP) has not listed this chemical in its report on carcinogens. (1)

PMPPi: IARC has concluded that this chemical is not classifiable as to its carcinogenicity to humans (Group 3). ACGIH has no listing for this chemical. NTP has not listed this chemical in its report on carcinogens. (1)

TERATOGENICITY, EMBRYOTOXICITY, FETOTOXICITY

No human or animal information is available. (1)

REPRODUCTIVE TOXICITY

No human or animal information is available. (1)

MUTAGENICITY

It is not possible to conclude that 4,4'-MDI or PMPPi are mutagenic. No human or animal in vivo studies on 4,4'-MDI and PMPPi have been reported. In one human case report, MDI, a main component of PMPPi, caused DNA damage in white blood cells after inhalation exposure to 5 to 20 ppb. No conclusions can be drawn from this case report. (1)

TOXICOLOGICALLY SYNERGISTIC MATERIALS

No information is available. (1)

POTENTIAL FOR ACCUMULATION

4,4'-MDI: 4,4'-MDI can enter the body by inhalation or ingestion. It is probably metabolized to 4,4'-methylene dianiline, which is metabolized further and excreted. (1)

PMPPi: Probably does not accumulate. No information on the breakdown (metabolism) of PMPPi is available. Reacts with water and tissues. MDI is probably metabolized to 4,4'-methylene dianiline, which is further metabolized and excreted. (1)

SECTION IV: FIRST-AID MEASURES

SKIN CONTACT

Wash with plenty of water. If skin irritation or rash occurs: Get medical advice. Take off immediately all contaminated clothing and wash it before reuse.

EYE CONTACT

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.

INHALATION

If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center.

SWALLOWING

Immediately call a poison center. Rinse mouth. Do NOT induce vomiting.

SECTION V: FIRE-FIGHTING MEASURES

FLAMMABILITY: Non flammable.

FLASH POINT: Non flammable

AUTO-IGNITION TEMPERATURE: Not applicable

FLAMMABILITY LIMITS IN AIR: (% in volume) Not applicable

COMBUSTION PRODUCTS

Carbon oxides (CO, CO₂), nitrogen oxides and hydrogen cyanide.

FIRE FIGHTING INSTRUCTIONS

Evacuate area. Wear self-contained breathing apparatus and appropriate protective clothing in accordance with standards. Approach fire from upwind and fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Always stay away from containers because of the high risk of explosion. Stop leak before attempting to put out the fire. If leak cannot be stopped, and if there is no risk to the surrounding area, let the fire burn itself out. Move containers from fire area if this can be done without risk. Cool containers with flooding quantities of water until well after fire is out.

MEANS OF EXTINCTION

Carbon dioxide, dry chemical powder, protein foam, water spray (for large fires). Alcohol resistant foams are preferred for large fires. General purpose synthetic foams or protein foams may work, but much less effective. Care must be taken since the reaction between water and water-based foam and isocyanates can be vigorous.

SECTION VI: ACCIDENTAL RELEASE MEASURES

RELEASE OR SPILL

Wear appropriate protective equipment during cleanup (see section VIII). Isolate the area and deny entry to unnecessary and unprotected personnel. Ventilate area. Eliminate all ignition sources. Shut off source of leak if it can be done without risk. Contain the spill. Absorb with inert material such as sand or earth. Wash spill area with neutralizing solution (90% water + 8% of sodium bicarbonate + 2% detergent) or water and detergent and allow to stand for 15 minutes. Prevent entry into waterways, sewers, basements. Sweep or shovel into containers with lids. Cover without making container pressure tight and remove to appropriate well-ventilated area until disposal. Dispose of this product according to local environmental regulations.

SECTION VII: HANDLING AND STORAGE

HANDLING

This product and its vapours are toxic. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid breathing mist, vapour or dust. Wash thoroughly after handling. Before handling, it is very important that ventilation controls are operating and protective equipment requirements are being followed. People working with this product should be properly trained regarding its hazards and its safe use. Keep away from heat. Tightly reseal all partially used containers. Do not cut, puncture or weld empty containers.

STORAGE

Store in a cool well-ventilated area out of direct sunlight and away from heat and ignition sources. Store at temperatures between 18.3°C and 29.4°C (65°F and 85°F). Keep storage areas clear of combustible materials. No smoking near storage area. Store away from incompatible materials. Store the product according to occupational health and safety regulations and fire and building codes. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Have appropriate fire extinguishers and spill clean-up equipment near storage area. Inspect all containers to make sure they are properly labelled.

SECTION VIII: EXPOSURE CONTROLS / PERSONAL PROTECTION

HANDS: Wear polyethylene, ethylene, vinyl alcohol, butyl rubber, natural rubber, neoprene rubber, nitril rubber, polyvinyl alcohol, polyvinyl chloride or Viton gloves.

RESPIRATORY: If the TLV is exceeded, if use is performed in a poorly ventilated confined area, use an approved respirator in accordance with standards. Organic vapour cartridges are a recommended protective mean, but not fully approved by manufacturers.

EYES: Wear chemical safety goggles in accordance with standards.

OTHERS: Eye bath and safety shower.

CONTROL OF VAPOURS: Local exhaust is needed to control vapour and dust level to below recommended limits.

SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
ODOUR AND APPEARANCE:	Amber liquid with low odour
ODOUR THRESHOLD:	Not available
VAPOUR DENSITY (air = 1):	Heavier than air
EVAPORATION RATE (Butyl acetate = 1):	Not available
BOILING POINT (760 mm Hg):	Not available
FREEZING POINT:	Not available
SPECIFIC GRAVITY (H₂O = 1):	1.19 kg / L
SOLUBILITY IN WATER (20°C):	Not soluble
VOLATILE ORGANIC COMPOUND (V.O.C.) CONTENT:	0 g/L
VISCOSITY:	750 cP (Visco Brookfield LVT)

SECTION X: STABILITY AND REACTIVITY

STABILITY: This material is stable.

INCOMPATIBILITY: Water amines, alcohol, strong acids, strong bases, strong oxidizing agents, amides, phenols, mercaptans, urethanes, ureas and surface active compounds.

HAZARDOUS DECOMPOSITION PRODUCTS: 4,4'-Methylene dianiline (formed by reaction of MDI with water).

CONDITIONS TO AVOID: Moisture, heat, direct sunlight.

HAZARDOUS POLYMERISATION: None.

SECTION XI: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA

4,4'-MDI: (1)

LC ₅₀ (rat):	490 mg/m ³ (4-hour exposure - aerosol)
LD ₅₀ (oral, rat):	> 10 000 mg/kg
LD ₅₀ (dermal, rabbit):	> 10 000 mg/kg

PMPPi: (1)

LC ₅₀ (male rat):	490 mg/m ³ (4-hour exposure - aerosol)
LD ₅₀ (oral, rat):	10 000 mg/kg
LD ₅₀ (dermal, rabbit):	6 200 mg/kg

Effects of Short-Term (Acute) Exposure

INHALATION

4,4'-MDI: MDI has a very low vapour pressure and it is difficult to achieve vapour concentrations necessary for inhalation toxicity testing. Therefore, inhalation toxicity studies have focused on the effects of the aerosol. No significant effects were found when rats were exposed to 2, 5 and 15 mg/m³ of MDI aerosol for 6 hours/day, 5 days/week for 2 weeks. (1)

PMPPi: PMPPi has an extremely low vapour pressure and it is difficult to achieve vapour concentrations necessary for inhalation toxicity testing. The desired vapour concentrations can only be obtained by heating the PMPPi source. The vapour evolved readily condenses to an aerosol in the inhalation exposure chambers. Therefore, it is likely that an aerosol rather than a vapour is present. No harmful effects or changes in body weight were observed in rats exposed to PMPPi vapour near the saturation concentration (estimated concentration: 0.2 ppm). (1)

EYE IRRITATION

4,4'-MDI: 4,4'-MDI has caused no irritation or slight irritation of the eyes. (1)

PMPPi: PMPPi is a mild eye irritant. (1)

SKIN IRRITATION

4,4'-MDI: MDI is a severe skin irritant. (1)

PMPPi: No specific information was located for PMPPi, MDI, a major component of PMPPi, is a severe skin irritant. (1)

INGESTION

4,4'-MDI: Rats were given daily doses of 4.3 to 5 g/kg for 5 days. The only effect was a slight enlargement of the spleen in 2 of 5 rats. (1)

PMPPi: No information available. (1)

Effects of Long-Term (Chronic) Exposure

INHALATION

PMPPi: In two studies, six-week old rats were exposed to 0.35, 1.4 or 7.2 mg/m³, or 4.1, 8.4 or 12.3 mg/m³ PMPPi aerosol for 13 weeks. In the first study, a temporary reduction in growth was seen in males and minor cellular changes were observed in the lungs of both sexes at 7.2 mg/m³. In the second study, severe respiratory distress and deaths occurred at 12.3 mg/m³. Less pronounced irritation, increased lung weights and cellular changes in the lungs, but no deaths were observed at 8.4 mg/m³. (1)

4,4'-MDI: No information available. (1)

RESPIRATORY SENSITIZATION

PMPPi: Mild, but not significant sensitization-like responses occurred in guinea-pigs that inhaled commercial PMPPi at 4.6 mg/m³ for 4 hours/day for 5 days. (1)

4,4'-MDI: No information available. (1)

SKIN SENSITIZATION

4,4'-MDI: The sensitizing potency of MDI was investigated using the mouse ear-swelling test (MEST). The dose required to sensitize 50% of the animals was 0.73 mg/kg. In this test, MDI was less potent than hexamethylene diisocyanate (HDI) and dicyclohexylmethane diisocyanate (HMDI), but more sensitizing than toluene diisocyanate (TDI). Cross reactivity was observed between MDI and HDI, HMDI and TDI. (1)

PMPPi: Commercial PMPPi caused skin sensitization in guinea-pigs that had previously inhaled MDI. The degree of sensitization appeared to be greater for PMPPi than for MDI. (1)

CARCINOGENICITY

4,4'-MDI: There is no animal information on the carcinogenicity of MDI itself. In one study, polymeric MDI containing 44.8-50.2% monomeric MDI was tested for carcinogenicity by inhalation in rats. An increased incidence of lung tumours was observed IARC has determined there is limited evidence for the carcinogenicity of a mixture containing monomeric and polymeric MDI to experimental animals. (1)

PMPPi: Rats were exposed to 0.2, 1.0 or 6.0 mg/m³ respirable PMPPi aerosol for up to 24 months (6 hours/day, 5 days/week). Indicators of recurrent lung tissue damage were seen at 1.0 and 6.0 mg/m³. An increase in the incidence of lung cancer was also observed at 6.0 mg/m³. It was concluded that exposure to PMPPi at concentrations leading to recurrent lung damage was associated with the development of pulmonary tumours. IARC has concluded there is limited evidence for the carcinogenicity of a mixture containing MDI and PMPPi in experimental animals. (1)

MUTAGENICITY

4,4'-MDI: It is not possible to conclude that MDI is mutagenic. (1)

PMPPi: No information available. (1)

SECTION XII: ECOLOGICAL INFORMATION

ENVIRONMENTAL EFFECTS

Do not allow product or runoff from fire control to enter grounds, basements storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial and federal regulations may require that environmental and / or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life.

SECTION XIII: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

This product is considered as dangerous material. Consult local, state, provincial or territory authorities to know disposal methods. This material is also known as dangerous waste by RCRA (USA); disposal should follow EPA regulations.

SECTION XIV: TRANSPORT INFORMATION

This product is not regulated by DOT and TDG.

SECTION XV: REGULATORY INFORMATION

- DSL:** All constituents of this product are included on the Domestic Substances List (DSL – Canada)
- TSCA:** All constituents of this product are included on the Toxic Substances Control Act Inventory (TSCA – USA).
- Prop. 65:** This product does not contain chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION XVI: OTHER INFORMATION

GLOSSARY

- ASTM:** American Society for Testing and Materials (United States)
- CAS:** Chemical Abstract Services
- CSA:** Canadian Standardization Association
- DOT:** Department of Transportation (United States)
- EPA:** Environmental Protection Agency (United States)
- GHS** Globally Harmonized System
- LD₅₀/LC₅₀:** Less high lethal dose and lethal concentration published
- NIOSH:** National Institute for Occupational Safety and Health (United States)
- RCRA:** Resource Conservation and Recovery Act (United States)
- TDG:** Transportation of Dangerous Goods (Canada)
- TLV-TWA:** Threshold Limit Value – Time-Weighted Average

Reference:

- (1) CHEMINFO (2015) Canadian Centre of Occupational Health and Safety, Hamilton (Ontario) Canada.

Code of SDS:

CA U DRU SS FS 145

For more information:

1 800 567-1492

The Safety Data Sheets of SOPREMA Canada are available on Internet at the following site: www.soprema.ca

Justification of the update:

- Section VI and VIII.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.